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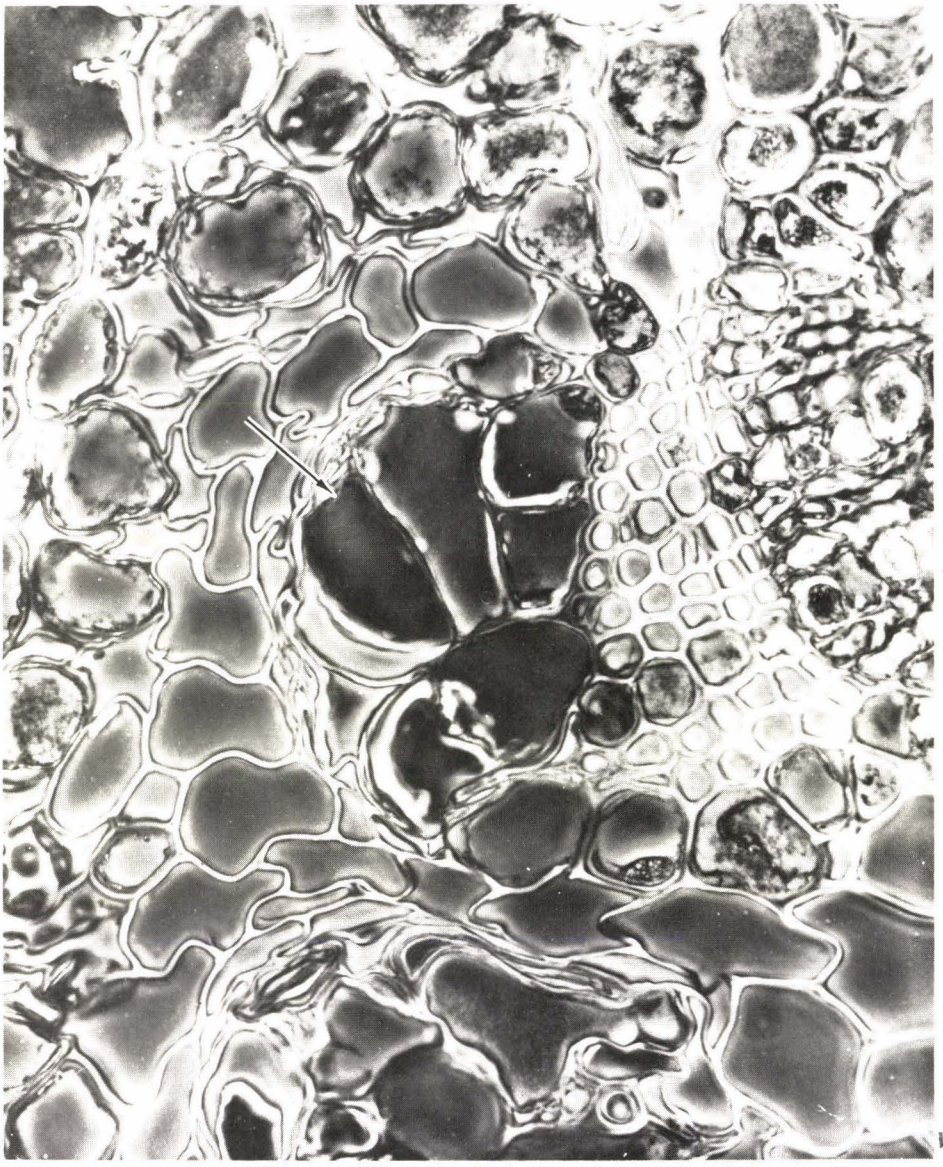
FOREST DISEASE CONDITIONS IN THE NORTHERN REGION 1970



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U. S. DEPARTMENT OF AGRICULTURE, FOREST SERVICE
DIVISION OF STATE AND PRIVATE FORESTRY

Report No. 71-7

Missoula, Montana 5280

COVER PHOTO

Hypertrophied transfusion parenchyma cells (arrow) caused by excessive fluoride concentration in a lodgepole pine needle. These cells have expanced nearly three times their normal size and have caused collapse of nearby transfusion tracheids. At a later stage all living cells in the needle tip are killed. From the Columbia Falls, Montana, air pollution study 1970.

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FOREST DISEASE CONDITIONS IN THE NORTHERN REGION 1970

by

Oscar J. Dooling and Clinton E. Carlson
Plant Pathologists, Forest Insect and Disease Branch

SUMMARY

A special study was established to follow the fate of outplanted conifer seedlings infected with Fusarium and Verticillium. A large effort was expended in the treatment of dwarf mistletoe infected stands. Canker diseases, notably Cytospora and Atropellis, continue to cause concern in the Region. Needle cast diseases remained at a low level except for Hypodermella concolor and Lecanosticta sp. White pine blister rust continues to cause volume loss. Root rots and native rust diseases are causing an undetermined amount of impact on timber growth. Fluoride has caused considerable injury and mortality to vegetation in the Columbia Falls, Montana, area.

NURSERY DISEASES

As a follow-up to the 1969 outbreak of Fusarium oxysporum and Verticillium infection of western larch, Douglas-fir, and spruce at the Coeur d'Alene Nursery, 900 of the infected seedlings were outplanted in 1970. Uninfected seedlings from the Montana State Forest Nursery at Missoula were outplanted as checks. Survival will be checked during the spring of 1971.

DWARF MISTLETOES

A total of 10,072 acres of forest land were proposed for treatment for protection from three species of dwarf mistletoe in the last half of 1970. Because of monetary restrictions, only 4,059 acres on 7 National Forests were actually treated. Dwarf mistletoes continue as the major cause of growth reduction of forest trees in this Region. A study to more accurately measure growth impact on Douglas-fir was established on the Lolo National Forest in 1970.

CANKER DISEASES

Evaluation of the "carrot top" disease of western larch is continuing throughout the western larch type. This canker disease is caused primarily by Cytospora abietis, but the same symptoms are caused by rodent girdling, particularly on the Kootenai and Kaniksu National Forests.

Atropellis canker on lodgepole pine is causing some concern on the Kaniksu National Forest, and on many of the eastside Forests.

NEEDLE CAST DISEASES

Rhabdocline pseudotsugae was found occasionally scattered over the Douglas-fir type. The most severe damage was restricted to Douglas-fir Christmas tree plantations near Plains and Bigfork, Montana, and Sandpoint, Idaho.

Elytroderma deformans was reported on ponderosa and lodgepole pine on the Bitterroot and Colville National Forests and the Flathead Indian Reservation.

Hypodermella concolor was heavy on several scattered areas of the Magruder Ranger District of the Bitterroot National Forest, and the Red River Ranger District of the Nezperce National Forest.

Hypodermella laricis on western larch was light again in 1970, and was concentrated in areas of high larch casebearer populations.

Lecanosticta needle blight of western white pine was reported on the St. Joe National Forest in stream bottoms between Bovill and Clarkia. This needle blight has occurred off and on in these areas since 1958, but was especially noticeable in 1970.

WHITE PINE BLISTER RUST

White pine blister rust continues to cause volume losses throughout the western white pine type. The Clearwater National Forest reports over one-half of the white pine on special study areas on the Canyon and Bungalow Ranger Districts are spike topped by the disease.

ROOT ROTS

Root rots, caused by Fomes annosus, Armillaria mellea, and Poria weirii, are scattered throughout the Region. No estimates are available of the impact of these organisms on timber productions, but it probably is high. A survey will be initiated in 1971 to measure their impact.

The Clearwater National Forest reports infection centers of Armillaria containing up to 30 dead and/or infected trees on Pot Mountain.

NATIVE RUSTS

The impact of native rust diseases is unknown at present, but a survey will be initiated in 1971 to determine their impact. This will be a cooperative undertaking with the Native Rust Project of the Intermountain Forest and Range Experiment Station.

AIR POLLUTION

An intensive evaluation was initiated in the spring of 1970 for pollution damage caused by airborne fluorides in the Columbia Falls, Montana, area. Fluorides are emitted in large quantities (as high as 7,500 pounds per day) and have caused tree mortality and necrosis of vegetation on approximately 15,000 acres of forested lands, including the Flathead National Forest and Glacier National Park. Figure 1 shows typical internal injury to pine needles. The study will continue in 1971.

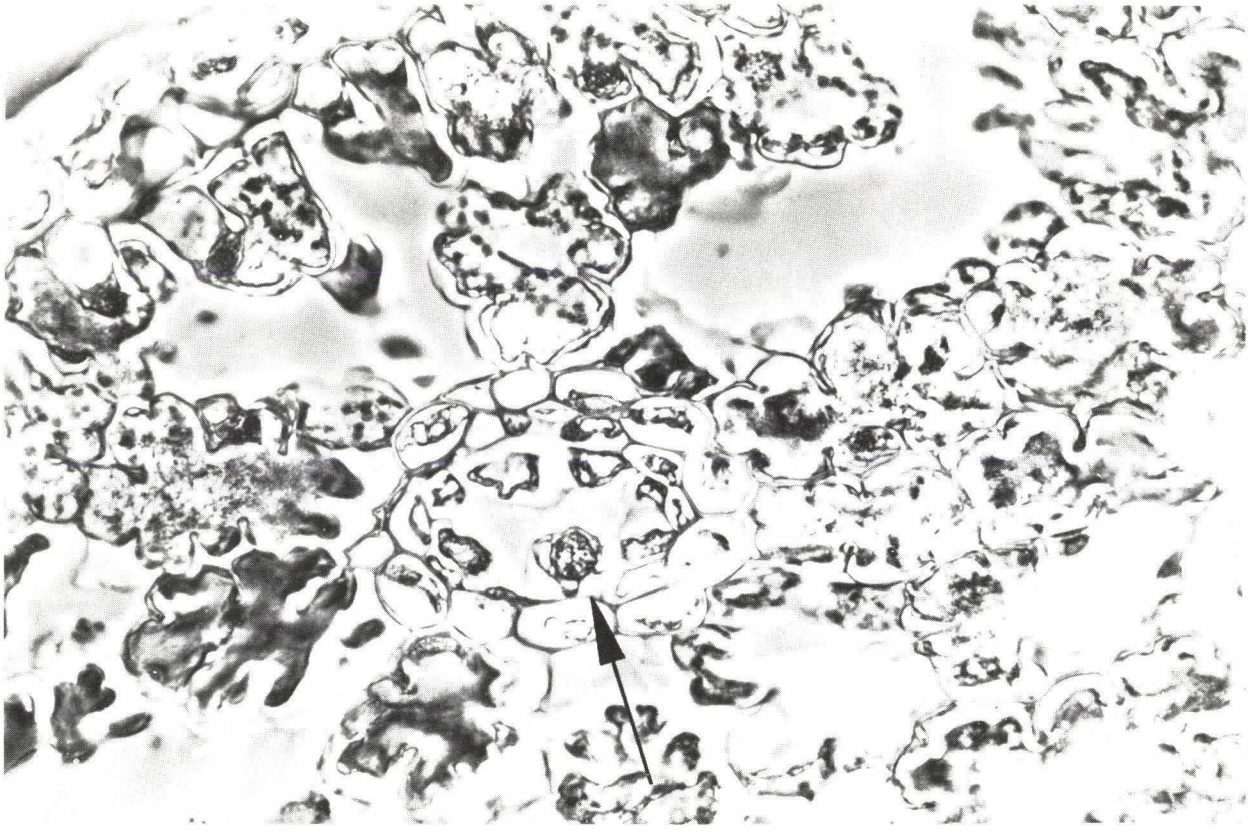

Figure 1

Expanded epithelial cells of resin canal causing occlusion of the canal. Note also the expanded nucleus (arrow). This symptom is caused by excessive fluoride in plant tissue. 1970.